Sheltered Boilers

Why does this information apply to my facility?
This fact sheet applies to facilities with boilers that have a total heat input capacity less than 100 million BTU/hr.

Many businesses have boilers that burn natural gas, gasoline, and/or fuel oil. It is important to calculate emissions for this equipment and evaluate the need for a Kansas Department of Health and Environment (KDHE) air permit or approval. Combustion emissions from boilers are typically regulated based on the amount of nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), particulate matter (PM), and volatile organic compounds (VOCs) that result from burning fuel. These common pollutants negatively impact the environment and human health and are monitored to prevent environmental degradation.

What regulations might apply to my facility?
Boilers at your facility may be subject to more than one type of *environmental* regulation:

- Kansas Air Quality Act standards:
  - o Air construction permit/approval
  - o Air operating permit (Class I or Class II)
- NSPS (New Source Performance Standards)

What is PTE?
When evaluating the boiler's need for a permit, you must consider your potential emissions, also known as your potential to emit (PTE). The PTE is the amount of emissions that would be produced if you operated 24/7 (8,760 hours per year) with no pollution control devices. Units are typically measured in tons/year, but if you modify existing equipment or want to install new equipment, you must also know the PTE in lbs/hour and lbs/24-hour period.

Boiler information to have handy
A few important numbers and dates are necessary when evaluating your boiler and determining your PTE. The following information can typically be found from purchasing records, the operating manual, or on the 'name plate' located on the boiler:

- Date of installation
- Heat input capacity (BTU or horsepower)
- Type of fuel (natural gas, fuel oil, etc)
- Low NO_X burner

Kansas Air Quality Act standards
If you are going to modify your existing equipment or install new equipment, you may need a construction approval or construction permit from KDHE. This type of permit looks specifically at new or modified equipment. A Kansas air operating permit, on the other hand, is an evaluation of all emission sources at your facility. If total emissions exceed certain thresholds, then an operating permit is needed. Details and threshold levels for the Kansas Air Quality Act standards are found in the fact sheet at *www.sbeap.org/publications/airqual.pdf*.

If you have installed or modified equipment since June 9, 1989, and it has never been evaluated for air emissions, you may still need to fill out an expedited approval or permit form if threshold limits are exceeded. NOTE: Emissions from equipment installed *at the same time* should be evaluated together for an approval or permit.

If you exceed the threshold for an air operating permit and would become a major source (Class I), you may be able to take a restriction to ensure you never exceed that threshold and avoid major source status. Instead, you can become a Class II source, which has fewer requirements.

NSPS (New Source Performance Standards)
Boilers installed or modified after June 9, 1989, with a heat input capacity greater than or equal to 10 million Btu/hr but less than or equal to 100 million Btu/hr, are subject to NSPS. In this case, the boiler is subject to section 40 CFR 60.42 subpart Dc, small industrial-commercial-institutional steam-generating units. Because you are subject to these standards, you will need to notify KDHE by completing the enclosed form, also located at *www.kdheks.gov/bar/index.html*, no later than September 30, 2008.

Emergency generators
If you have an emergency generator that is only used to supply emergency power and not used to supplement power needs during peak hours (for example, you don't routinely operate it in the summer), you only need to fill out a simplified application for approval. This form is available at *www.kdheks.gov/air-permit/forms/Emergency_Gen_App.pdf*. When evaluating your need for an air construction approval or permit, you can assume the emergency generator operates 500 hours per year. However, if you operate the generator to supplement power needs, then your PTE calculations must be based on 8,760 hours per year.

FAQ (frequently asked questions)
My boiler/generator can use different fuels. What do I do?
If your equipment can use more than one fuel, you must calculate your emissions as though you use each fuel 24/7, even if one is only used for backup. After estimating emissions from both fuel types, use the value that is the "worst" of the two. Although many boilers may not trigger the thresholds due to natural gas use, the fuel oil backup often triggers the permitting threshold.

I have low-NO_X burners – how does that help?
A low-NO_X burner is a type of gas burner that can be installed on natural gas-fired boilers to significantly reduce the formation of nitrogen oxides (NO_X). Boilers with low NO_X burners often have fewer permitting requirements than conventional boilers.

My water heaters are for domestic use only. Are they regulated?
Water heaters used for domestic use only do not need to be included when evaluating your need for permits. Domestic use includes production of hot water for on-site personal use and is not related to industrial processes. This also includes fuel use related to food preparation for consumption on the premises.

What's the difference between MBTU and MMBTU?
When talking about boilers and emergency generators, the heat input capacity is typically shown in BTUs, which is a unit of energy called a British thermal unit. Because this unit is so small, you'll likely see an M or MM in front of the BTU. In this case, M stands for thousand and MM for million. For example, 10 MBTU would be 10,000 BTUs and 10 MMBTU would be 10 million BTUs.

Reporting form for expedited boiler approval/permit application is available on KDHE's Web site at *www.kdheks.gov/bar/index.html*.